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(54) **Lavatory cleansing compositions**

(57) A lavatory cleansing block comprises, by weight, from 30 to 65% of a sugar-rich sucrose ester surfactant composition (as herein

defined); from 5 to 36% of one or more other surfactant materials and/or foaming agents; and up to 20% of a builder; together with 1 to 10% of a water soluble perfume and optionally a colouring agent and/or a biocide.

SPECIFICATION

Lavatory cleansing compositions

This invention relates to compositions for cleansing lavatory bowls and urinals which are periodically flushed with water. In particular, the invention relates to blocks or tablets for immersion in the flushing system so as to dose the flushing water with an effective amount of cleansing agents. 5

Lavatory cleansing blocks of this type are now a well known commodity. In general they comprise one or more surfactant materials, together with perfumes, colouring agents and, optionally, disinfectant materials. The problem in formulating a composition of this type is that the material must dissolve in water sufficiently to dose each charge of water which is flushed into the lavatory bowl or urinal with a suitable amount of cleansing materials, but on the other hand must be sufficiently insoluble so as to remain in the system for a reasonable period without liquifying or dissolving away. 10

In British Patent No. 1,538,857 the solution to this problem is offered in the form of a combination of a "hydrophobic material" and a hydrophilic surfactant. The theory behind this combination is apparently that the hydrophobic material retards dissolution of the hydrophilic surfactant so that the tablet does not immediately dissolve in the system but is slowly leached by the constantly replenished water. 15

In British Specification No. 1,364,459, certain shortcomings of this kind of composition are described, in particular the difficulty in obtaining any identifiable perfume in the flushing water. Patent Specification No. 1,364,459 proposed a composition again containing a detergent and an organic hydrophobic material, but so arranged that the hydrophobic material is required to be precipitated in the water so that some of the precipitated material floats on the surface of the water entrapped in the lavatory bowl and some adheres to the sides of the bowl. This material acts as a carrier for the perfume and so enables the lavatory bowl to be perfumed. 20

Another British Patent Specification No. 1,418,830 describes a lavatory cleansing block comprising a solid carrier base which is a mixture of a major proportion by weight of a surface active component which is relatively insoluble in water and a minor proportion by weight of a surface active component which is relatively soluble in water. This block is so designed that no external container is required, the block being sufficiently stable to stay in the cistern water without breakdown. 25

The present invention we have departed radically from the previous types of lavatory cleansing blocks described above to produce a relatively hard stable block containing no precipitable hydrophobic material, and containing a substantially water soluble perfume. This can be achieved by using a particular combination of surfactants and perfumes and results in a biodegradable physically stable product having a good perfuming ability without recourse to precipitated hydrophobic material floating on the water or adhering to the bowl. 30

According to the present invention, we provide a lavatory cleansing block comprising from 30 to 65% by weight of a sugar-rich sucrose ester surfactant composition, from 5 to 36% of one or more other surfactant materials and/or foaming agents and up to 20% by weight of a builder material, together with 1 to 8% by weight of a water soluble perfume and optionally a colouring agent and/or a biocide. In general, the total surfactant content of the composition should be from 60 to 90% by weight. 35

The sugar-rich sucrose ester surfactant used as the main surfactant component is a mixture of sucrose mono- and di-esters of long chain fatty acids, mixed glycerides, soap and sucrose in which the sucrose content is from 10 to 25%, preferably from 15 to 25% by weight. Such a material may be obtained by sucrose transesterification processes well known in the art. A particularly useful product is obtained by the transesterification of sucrose with fatty acid glycerides, in the absence of solvent, especially in a process as described and claimed in British Patent Specification No. 1,399,053. The sucrose ester material obtained by the process is conveniently used in its crude, un-refined state, directly as obtained from the reactor. The product of a reaction using a starting material relatively high in sucrose typically contains from 25 to 45% by weight of soap, from 25 to 35% by weight of mixed glycerides, from 10 to 25% by weight of sucrose. One advantage of the high sucrose content is that the material is considerably harder than those materials containing a smaller proportion of sucrose. 40

The other surfactant included in the composition may be, for example, an alkyl benzene sulphonate, a fatty alcohol ethoxylate, a fatty alcohol sulphate, a fatty acid alkylolamide e.g. based on coconut or lauric fatty acid or an amphoteric surfactant such as that sold under the Trade Name Miranol C2M. The surfactant is preferably full biodegradable. 45

The foaming agent is conveniently a polyol ester of a fatty acid, for example lactitol laurate. This type of foaming agent is again preferred because of its biodegradability. 50

The builder may be a conventional alkali metal inorganic salt such as potassium tetrapyrophosphate, sodium tripolyphosphate, sodium carbonate, and borax.

The perfumes used in the compositions according to this invention are substantially water soluble, as opposed to the normal water insoluble perfumes previously used in lavatory cleansing block formations. 60

The perfume is of a non toxic and non irritant nature, and conveniently comprises a mixture of aromatic components such as esters and aldehydes, together with a dispersant such as an ethoxylated alkylphenol, in solution in an aliphatic alcohol such as ethanol or isopropanol.

An example of such a perfume is GCW172A (manufactured by Proprietary Perfumes Limited of Ashford, Kent, U.K.) having a green apple fragrance. This perfume has the additional advantage that it can be incorporated without decomposition at temperatures up to 80°C.

In addition to the above mentioned components, the composition may contain a colouring agent
5 such as dyestuff or pigment, which is most desirably a blue or blue-green colour. 5

A conventional biocide may also be added. Whilst it is possible to use a wide range of biocides, the preferred compounds are Giv-Gard DXN(6-acetoxy-2,2-dimethyl-m-dioxan) or tri-(hydroxymethyl)-nitromethane, a formaldehyde releasing antimicrobial agent, in its 50% active aqueous form (supplied by Givaudan & Co Ltd, Honeywell & Stein Ltd respectively). These have been found to be active at low
10 concentrations, water soluble and compatible with the sucrose surfactant described above. 10

The compositions according to this invention may be prepared by simply mixing the various ingredients at a slightly elevated temperature e.g. about 90°C, with the exception of the perfume and biocide which should be added to the mixture after it has cooled somewhat, e.g. to about 60—70°C. The mixture can be moulded or cut into suitably sized tablets or blocks for inclusion in the cistern of a
15 lavatory or urinal. 15

The following examples illustrate the invention:

EXAMPLE 1

Tal 120 T 45, a sucrose ester surfactant material having the following approximate composition

	Potassium soaps	25—45% by weight	
20	Mixed glycerides	25—35% by weight	20
	Sucrose esters	20—25% by weight	

(62 parts by weight) was mixed with borax (15 parts by weight) Nansa HS80/S, an alkyl benzene sulphonate (10 parts by weight) and dyestuff ER10 Brilliant Blue V 115% (supplied by Ciba-Geigy) (7 parts by weight) at a temperature of about 90°C. The mixture was cooled to about 65°C and 5 parts by
25 weight of perfume GCW 172A were incorporated. The mixture was then formed into tablets or blocks of about 40g weight. One of these tablets added to a lavatory cistern produced a suitable dosage of 25
cleansing agent and perfume at each flushing.

EXAMPLE 2

Tal 120 T 45 (54 parts by weight), tripolyphosphate (3 parts by weight) Nansa HS80/S (alkyl
30 benzene sulphonate) (10 parts by weight), Empicol LZV (medium cut sodium lauryl alcohol sulphate, at least 85% active) (10 parts by weight), Empilan LDEA (Lauric diethanolamide) (10 parts by weight) and dyestuff (7 parts by weight) were combined at about 90°C. The mixture was cooled to 65°C and perfume GCW 172A (5 parts by weight) and biocide (1 part by weight) were added. The composition was shaped into blocks as in Example 1. 30

EXAMPLE 3

Tal 120 T 45 (54 parts by weight), potassium tetrapyrophosphate (5 parts by weight), Nansa HS80/S (alkyl benzene sulphonate) (10 parts by weight), Empicol LZV (medium cut sodium lauryl sulphate at least 85% active) (8 parts by weight), Empilan LDEA (lauric diethanolamide) (10 parts by weight) and dyestuff (7 parts by weight) were mixed as in Example 1 and perfume GCW 172A (5 parts
40 by weight) and biocide (1 part by weight) were added on cooling. The mixture was tabletted as in Example 1. 40

EXAMPLE 4

A similar composition was prepared containing the following components:

	Tal 120 T 45	54 parts by weight	
	Tetrapotassium pyrophosphate	3 parts by weight	
	Sodium tripolyphosphate	15 parts by weight	
	Empilan LDEA	5 parts by weight	
5	Miranol C2M Conc.	10 parts by weight	5
	Dyestuff	7 parts by weight	
	Perfume GCW 172A	5 parts by weight	
	Biocide	1 part by weight	

Tablets were formed as in Example 1.

10 EXAMPLE 5

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A composition was prepared containing the following components:

	Tal 120/T/45	52 parts by weight	
	Empilan LDEA	9 parts by weight	
	Sodium tripolyphosphate	11 parts by weight	
15	Borax	5 parts by weight	15
	Lactitol Laurate	10 parts by weight	
	Dyestuff	7 parts by weight	
	Perfume GCW 172A	5 parts by weight	
	Biocide	1 part by weight	

20 The mixture was moulded or cut into suitably sized blocks as in Example 1. 20

EXAMPLE 6

A similar composition was prepared containing the following components:

	Tal 120/T/45	54 parts by weight	
	Sodium carbonate	18 parts by weight	
25	Lactitol laurate	10 parts by weight	25
	Empigen BB (N-alkyl Betaine — C ₁₂ /C ₁₄)	5 parts by weight	
	Dyestuff	7 parts by weight	
	Perfume GCW 172A	5 parts by weight	
	Biocide	1 part by weight	

30 The mixture can be moulded or cut into suitably sized blocks as in Example 1. 30

EXAMPLE 7

A composition was prepared containing the following components:

	Tal 120/T/45	30	
	Alkyl benzene sulphonate	20	
	Coconut Monoethanolamide	10	
	Ethylon 172 (Fatty alcohol ethoxylate)	10	
5	Borax	18	5
	Dye	7	
	Perfume GCW 172A	5	

The mixture can be moulded or cut into suitably sized blocks as in Example 1.

EXAMPLE 8

10 A similar composition was prepared containing the following components: 10

	Tal 120/T/45	30	
	Coconut Monoethanolamide	10	
	Ethylon 172 (Fatty alcohol ethoxylate)	10	
	Alkyl benzene sulphonate	20	
15	Tetra potassium pyrophosphate	18	15
	Dye	7	
	Perfume GCW 172A	5	

The mixture can be moulded or cut into suitably sized blocks as in Example 1.

CLAIMS

- 20 1. A lavatory cleansing block comprising, by weight, from 30 to 65% of a sugar-rich sucrose ester surfactant composition (as herein defined); from 5 to 36% of one or more other surfactant materials and/or foaming agents; and up to 20% of a builder; together with 1 to 10% of a water soluble perfume and optionally a colouring agent and/or a biocide. 20
- 25 2. A block according to claim 1, in which the total surfactant content is from 60 to 90%. 25
3. A block according to claim 1 or claim 2, in which the sugar-rich sucrose ester detergent contains 15—25% of sucrose. 25
4. A block according to claim 3, in which the sugar-rich sucrose ester surfactant is the product of a solvent-free transesterification of sucrose with fatty acid glycerides.
5. A block according to any of claims 1 to 4, in which the other surfactant is an alkyl 30 benzenesulphonate, a fatty alcohol ethoxylate, a fatty alcohol sulphate, a fatty acid alkylolamide or an amphoteric surfactant. 30
6. A block according to any of claims 1 to 5, in which the foaming agent is a polyol ester of a fatty acid.
7. A block according to any of claims 1 to 6, in which the perfume incorporated comprises a 35 mixture of aromatic components together with a dispersant, in solution in an aliphatic alcohol. 35
8. A block according to any of claims 1 to 7, in which the biocide is 6-acetoxy-2,2-dimethyl-*m*-dioxan or tri-(hydroxymethyl)-nitromethane.
9. A lavatory cleansing block substantially as herein described in any of the Examples.